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Country Responses to Massive Capital Flows

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ABSTRACT

The emergence of a select group of developing countries as destinations for private portfolio investment in the 1990s (and the subsequent peso crisis in Mexico in 1994) has rekindled the old issues about the responsibilities and capacities public authorities have with regard to managing the absorption of these resources. This paper discusses the purposes public authorities might have in resisting these flows and presents a model of how authorities might intervene through their domestic financial system. It reviews the experiences of Chile, Malaysia, and Korea as countries whose policy responses have straddled the range of options. It suggests three key issues in the attempts of authorities to intervene in these private decisions. First, it is important for authorities to have clear objectives if they are going to attempt to resist market signals, such as exchange appreciation. Second, authorities should have a constant stance with regard to desirable flows and use flexible instruments. Third, authorities should exert efforts to improve their capacity to intervene through efforts such as building up reserves and creating domestic markets for sterilization instruments.

1. INTRODUCTION

The 1990s saw the much sought for return of Latin America to international capital markets and the almost foreseen re-emergence of external capital flow issues as the flows retreated in 1994, subsequent to another Mexican crisis. As in the 1980s debt crisis, the crisis affected those developing countries that had been most successful in exploiting these resources, and in this case including the faster growing economies in Asia. The question of how developing countries can properly utilize private international ("voluntary") capital flows becomes even more enigmatic than in the 1980s crisis because the current hazards cannot be easily attributed to protectionist trade regimes, inefficient government investment in its own enterprises, and all the other ills that might possibly be linked to state intervention.

Even before the crisis erupted, countries experiencing capital inflows had been making difficult choices between letting their currencies appreciate (undermining attempts to reorient their trade regimes), accepting massive increases in domestic liquidity (endangering inflation targets), or accepting abnormally high domestic interest rates (encouraging risky domestic lending and choking investment) depending on whether they let their currencies float, fixed their exchange rate, or sterilized capital inflows. In contrast to times past, when the availability of voluntary external capital had seemed an unalloyed boon to receiving countries,[1] these flows must now be treated not only as a mixed blessing, but as a diminution to the scope for short-term macroeconomic management and development strategy.

This paper discusses the elements that might be factored in evaluating country responses to capital flows. The main focus is on the circumstances facing receiving countries, even though as a consequence of the limitations of national policy the case will be made for international coordination. In this preliminary paper, I present work in progress to eventually identify a simple framework for understanding policy dilemmas in responding to massive capital inflows at the level of macroeconomic management. The subsequent step of quantification of the analysis is the object of future work.

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[1] On the premise that flows driven by differentials in rates of return help to optimally allocate capital internationally, these flows are also presumed to be a boon to all countries.

The rest of this essay proceeds as follows: The next section, Section 1, discusses the issues that provide the context in which attempts of public authorities to intervene in private flows takes place. Section 2 presents a model which is intended to capture the analytical issues involved in understanding country responses to massive capital flows. Section 3 surveys the range of policy instruments and discusses the capacity of countries for independent response to capital flows. Section 4 reviews recent actual experiences. Section 5 constitutes the concluding section.

2. WHAT ARE THE ISSUES?

Before the 1990s version of the debt crisis began, international private voluntary capital flows enjoyed the (presumed) cachet of capital resources being provided to capital-needy economies with no guarantees from public authorities. The risk to economic managers was arguably minimal; as long as they were liberalizing their economies, private actors would venture their capital into the areas which provided the appropriate risk-return combination based on private calculations/wagers. A more sophisticated view was offered in Dornbusch [1993b, p. 375] before the Mexico crisis: capital flows into Mexico (and the currency appreciation/current account deficits they engendered) were a downpayment for international investors' partaking of future economic performance. Mexico was after all not only liberalizing/privatizing its economy, the government was also running a budget surplus.

The aftermath of the Mexico crisis was that U.S. government and International Monetary Fund (IMF) resources had to be drawn upon to backstop mutual fund losses in the U.S. and prevent an international breakdown in capital markets. While it is an indication that the lessons of the 1980s debt crisis had not been learned (or that its causes at least partly misdiagnosed), in this instance, a significant portion of the direct costs were charged immediately to the taxpayers of the North. The **first issue** is therefore the implicit public liability, the lender-of-last-resort responsibility, that these flows create, in the absence of an international system of regulation. In the 1980s debt crisis, the mechanism of forcing sovereign debtors to "adjust" the economies under their control through IMF programs implicitly meant that developing country governments undertook the lender-of-last-resort duties.

The responsibilities and capabilities of the capital-importing countries in responding to capital private flows, driven principally by differentials in return and portfolio diversification motives, is the interest of this paper. Because these countries supervise and have a unavoidable interest in the soundness of their domestic financial systems, the external liabilities these systems incur are implicitly publicly guaranteed, not to mention explicit guarantees and subsidies that still exist left over from the time that capital was even more scarce. The scope of prudential supervision is necessarily limited; as the financial system gets more sophisticated, large credit institutions emerge that do not yet fall under supervisory control. While this problem of supervisory scope is shared by the emerging economies with the industrial countries, public authorities in the capital-needing economies are in a weaker position in evading their lender-of-last-resort responsibilities. They can always "adjust" their economies, as in the 1980s, though the 1990s version of the Mexican crisis suggests when the size of international liability is so large (1) the single-country quantitative adjustment required would have been socially infeasible and (2) even with a large commitment of additional post-crisis resources, the amount of adjustment Mexico has undertaken has been substantial.

The **second issue** is what might be called "compositional preferences" that, in the first place, has been unequivocally revealed in the policy responses of the emerging economies and, in the second, could be theoretically indispensable to countries seeking to consciously engender their development process. At the surface level, these are preferences have expressed in terms of biases for different types of capital - for direct investment instead of portfolio investment, for example, even though theoretically and empirically,[2] capital is capital. The bias is at least an indication that capital funds are still not perfectly fungible in investment markets in developing countries, an uncontroversial proposition. Capital markets in the countries we are interested have been characterized as both narrow and shallow.

More fundamentally, higher rates of growth at lower interest rates, even for net borrowers of capital, do not constitute the totality of development objectives. Developing country governments and monetary authorities, for well or ill, have

[2] A recent set studies suggest that it is difficult to unambiguously associate direct investment flows with less volatility than portfolio flows (Claessens, Dooley and Warner [1993] and Dooley, Fernandez-Arias and Kletzer [1996]).

revealed preferences for a few key "compositional" objectives.[3] There are a wide range of emphases on these other objectives among countries, between countries in different regions, and by the same country in different conjunctural situations. One can list some of these "compositional objectives" and their corresponding policy implications, here stated in a more Asian formulation:

(1) a preference for investment growth over consumption growth

> There are a few ways to state this in Washingtonese - "a subsidy on the future" or a rather "low social discount rate." Short-term and long-term macroeconomic policy is informed by the necessity of economic catch up and the need to steadily increase the capital-labor ratio. There is a premium on lower interest rates, which increased capital inflows can finance. Attempts to stave off currency appreciation on the grounds of composition preference number 2 can be investment interest rate increasing. Notwithstanding access to foreign capital, the preference is for the external financing to subsidize investment instead of consumption.
>
> In Mexico, increased consumer lending impelled by the "upward revision of perceived permanent incomes" (Buira [1996, p. 19]) and fuelled by external borrowing, led to private dissavings before the crisis. The dilemma in this case was that consumer credit was providing an important impetus for the growth of the private banking system, which had just been liberalized. Restraining consumer credit would have not only run counter to the overall ethos of the liberalization program of encouraging private competition, it would have at least delayed the expected positive changes in monetary indicators from the financial liberalization program.
>
> The contrast in Latin American and Asian performance in regard to association of higher capital inflows with higher investment ratios is quite marked. Griffith-Jones [1995] contrasts Latin America and Asian capital account inflows and investment ratios. The set of Latin American countries invested about 16 per cent of their GDP in the period 1984-89 and 1990-93 at the same time that capital inflows increased from negative 2.4 to positive 1.6 per

[3] See also Williamson [1994] for related listing of these other objectives.

cent. In contrast, Asian economies which experienced an increase of capital inflows from 1.6 to 3.2 per cent of GDP increased their investment ratio from by 3.5 per cent, from 25.1 per cent in 1984-89 to 28.6 per cent in 1990-93.

(2) a preference for steady export growth which is on the average faster than import growth

The Washingtonian terminology is "international competitiveness" (Griffith-Jones [1995, p. 8]), and Asian governments, which have been at the receiving end of U.S. efforts to open their trade regimes and accept the appreciation of their currencies, have been more than willing to accommodate the more neutral-sounding Washington term. The policy implication is, of course, a distaste for a strong currency, which capital inflows can inflict if the government is not willing to have inflation or sterilize the inflows.

One policy dilemma arises in countries undertaking exchange-led stabilization (inflation reduction using an exchange rate anchor). Capital inflows, as it did in Mexico, provide the wherewithal for such an effort at the cost of increasing current account deficits. This raises two issues: (1) when is the accumulation of current account deficits excessive and (2) when is the cost of reducing inflation - in terms of accumulated external liabilities, even if private, and the loss of export markets - too high?

(3) a preference for maintained if not improving ability to service external liabilities

The need to limit exposure to external actors, even if (or specially when) they are owed to citizens of the borrowing country itself, is a revealed preference even though the question of why the free movement of private capital has to be hindered needs to be dealt with when theorizing in a Washington context. In that context, macroeconomic instability[4] due to the externalities associated with aggregate country risk interacting with limited cross-border

[4] This section is related to the lender-of-last-resort issue discussed earlier, but here the emphasis is on macroeconomic instability, not the public/private assignment of responsibility with regard to failed investment projects.

contract enforceability, exacerbation of (existing) distortions in the financial and real sector, distortions arising from unsustainable macroeconomic policies such as "incredible" trade liberalization (Fernandez-Arias and Montiel [1996], Calvo and Vegh [1991]) would justify government concern over increasing external debt liabilities.

Attention to the cumulation of current account deficits is critical. In the medium term, a country's capacity to repay depends its ability to expand exports and contract imports, which in turn depends on the ability to produce traded goods (Fernandez-Arias and Montiel [1996]), which in turn depends on the appropriate exchange rate and industrial policy regimes. In the medium term, the importance of sustaining domestic savings (government and private) even with access to private external capital is a guarantee of the ability to service foreign liabilities.

In fact there is a stronger proposition in this regard, which also applies to preference (1) above and (4) below. Among the four lessons from the East Asian experience Stiglitz [1996, p. 102] draws is that the capital resources required for successful development can be largely generated internally and that "even relatively poor economies can sustain a high savings rate."[5] This should not be interpreted as an argument for autarky, but an argument for the preeminence of domestically mobilized capital resources.

(4) a preference for long-term as imposed to short-term investments

There is by now an established tradition of disdain for attempts of governments to choose among investment projects. Chile and Colombia's taxation of short-term external borrowings are justified in the context of reducing speculative attacks and reducing the cost of sterilization. These are preferences over different types of investments that have been in place for at least 4 years. As

[5] The other three propositions are: (a) that development is not only feasible but that it can be achieved in reasonably short time, (b) government has a vital role to play, and (c) growth can be achieved with relatively equality and that it might egalitarian policies may even facilitate growth.

mentioned above, recent work have raised questions about the presumed smaller volatility of direct foreign investment flows (Claessens, Dooley and Warner [1993] and Dooley, Fernandez-Arias and Kletzer [1996]).

In the 1990s, a significant proportion of direct foreign investment inflows have been as a result of the purchase of the shares of domestic companies, in response to privatization programs emerging economies. These flows have permitted the growth of domestic equity markets. It is generally agreed that these flows are a "stock adjustment" and would end when the stocks of all state-owned assets are exhausted or the portfolio adjustment by international investors is completed, whichever comes earlier.

In light of these compositional objectives, the internationalization of capital inflows might reasonably be seen as a threat to the ability of nation-states to achieve their development objectives, even assuming that they are savvy enough to avoid macroeconomic instability. The yardstick for evaluating country responses to massive capital flows would have be various operational versions of the above preferences plus growth/development.

3. A BASIC MODEL

The old workhorse, the IS-LM model, is used to represent the issues involved in managing capital inflows.[6] Key schedules in the balance of payments sector are given detail and a financial sector is added to the standard model.

The first three equations of the model are the IS-LM-BP schedules:

$$Y = A(i, i^r, Y, G; \ldots) + TB(v/P, i, i^r, Y; \ldots) \qquad \textbf{IS} \quad (1)$$

6 Frankel [1994] and Woo and Hirayama [1995] use the same approach to analyze the question of monetary independence, an issue also briefly covered in the next section. Under IS-LM equilibria, the nirvana of price-cleared equilibrium is approached (and perhaps never reached) through a series of short-term equilibria, each intermediate equilibria contingent on time-bound private optimizing behavior, expectational estimates, accumulated stocks of capital, skills, etc., and the current policy stances of the state and large economic units. If one accepts this concept of equilibrium, the advantage of the IS-LM approach is that is provides an effortless reconciliation of asset and real markets.

$$\tilde{Z} = L(i, Y; \ldots)\ P \qquad \textbf{LM} \quad (2)$$

$$BP = 0 = TB(v/P, Y; \ldots) + KA(i - i^*; \Delta v^e, \ldots) \qquad \textbf{BP} \quad (3)$$

where

Y is output,

A is domestic absorption,

TB is the trade balance (which for the present purpose we associate with the accounting current account balance),

i is the interest rate applicable to real and financial investment,

i' is the interest rate applicable to retail lending, particularly consumer credit, which for the current purpose has to represent the total cost to the borrower of making a consumer loan,

v is the foreign exchange rate,

P is the price level,

Z is the money supply (for now we need not distinguish between high-powered and broad money),

G is government consumption spending

KA is the capital account,

BP is the balance of payments being the sum of TB and KA,

i* is the foreign interest rate

Δv^e is the expected rate of depreciation of the exchange rate.

The spaces after the semicolons represent shift variables that still might not be explicitly considered in the model below. The presence of the interest rate variables in the trade balance will be explained subsequently.

The key schedules in the model, **IS**, **LM**, and **BP** are meant to have standard slopes and these are shown in Figure 1, where the generic capital inflows problem is drawn as a downward shift in the **BP** curve, representing the

increased availability of external capital through the capital account, **KA**. Figure 1 shows that equilibrium can be restored either with an increase in liquidity and a shift of the **LM** curve outward, with the danger of higher prices (the bottom part of Figure1 is drawn with the original equilibrium near full employment output and prices rising steeply thereafter) or with a shift downward of the **IS** curve, which can be achieved with a currency appreciation or other reductions in absorption to be described below. We now need to elaborate the model further to be able to examine policy responses to capital inflows.

Domestic absorption is the sum of consumption, investment and government consumption:

$$A(i,i^r,Y) = C(i^r,Y) + I(i,Y) + G \qquad \textbf{AB} \quad (4)$$

$$\frac{\partial C}{\partial i^r} < 0,\ \frac{\partial C}{\partial Y} > 0,\ \frac{\partial I}{\partial i} < 0,\ \frac{\partial I}{\partial Y} > 0$$

where the consumption function **C( )** is specified as a decreasing function of i^r and output and the investment function **I( )** has the standard relation to the interest and the accelerator term.

The trade balance is the net of imports and exports:

$$TB = X(v/P) - M(\,) \qquad (5)$$

$$\frac{\partial X}{\partial(\frac{v}{P})} > 0$$

and imports are, turn, dependent on consumption, investment, and exports:

$$M = \alpha_c(v/P)\,C(i^r,Y) + \alpha_I\,I(i,Y) + \alpha_x X(v/P) \qquad (6)$$

$$\frac{\partial \alpha_c}{\partial(\frac{v}{P})} < 0$$

Equation (6) assumes that the imported component of consumption is particularly sensitive to the exchange rate. Making the substitutions:

$$TB = (1-\alpha_X)X(v/P) - \alpha_C(v/P)C(i^r, Y) - \alpha_I I(i, Y) \tag{7}$$

$$\frac{\partial TB}{\partial(\frac{v}{P})} = (1-\alpha_X)\frac{\partial X}{\partial(\frac{v}{P})} - \frac{\partial \alpha_C}{\partial(\frac{v}{P})}C(\ ) > 0$$

so that the trade balance, uncontroversially, improves with a devaluation, with the elasticities of export and domestic consumption as the prime determinants of the trade balance.

The **BP** schedule becomes:

$$BP = (1-\alpha_X)X(v/P) - \alpha_C(v/P)C(i^r, Y) - \alpha_I I(i, Y) + KA(i - i^*; \Delta v^e, \ldots) \tag{8}$$

$$\frac{\partial BP}{\partial i} = -\alpha_I \frac{\partial I}{\partial i} + \frac{\partial KA}{\partial i} > 0,$$

$$\frac{\partial BP}{\partial(\frac{v}{P})} = \frac{\partial TB}{\partial(\frac{v}{P})} > 0, \qquad \frac{\partial BP}{\partial i^r} = -\alpha_C \frac{\partial C}{\partial i^r} > 0$$

indicating that the positive slope of the BP line on the **Y-i** axis is maintained and the sum of the investment responsiveness to interest rates and the responsiveness of the capital account to interest rates. Higher consumption interest rates, $\mathbf{i^r}$, economize on foreign exchange through its restraint of consumption.

We now need to specify the financial system, i.e. the determination of **i** and $\mathbf{i^r}$. If capital is perfectly mobile with substitutability between the financial assets of the capital-importing country and international assets:

$$i - i^* = 0$$

What needs to be represented is the wedge between **i*** (which is thought to be the return on financial assets in creditor countries). Frankel [1991] suggests the following decomposition of the difference between domestic and international interest rates:

$$i - i^* = (i - i^* - fd) + (fd - \Delta v^e) + \Delta v^e \tag{9}$$

where fd is the forward discount on financial instruments with comparable maturities and the expected rate of depreciation is measured with a consistent time period. The first left-hand term, the "covered interest differential," measures country factors such as capital controls, default risk, risk of future capital controls. The second term measures the currency factors through the exchange risk premium, (**fd** - $\Delta \mathbf{v}^{\mathbf{e}}$), and the last term is the expected rate of depreciation.

This motivates a different method of accounting for the interest differential, following Fernandez-Arias and Montiel [1996, pp. 58-59], who suggest three "*shift parameters*" *of a model based on a vector of assets:*

(1) country creditworthiness, **c**, which include the default risk but other factors such as terms of trade shocks, debt-service reduction agreements,

(2) purely domestic factors, **d**, such as the long-run expected rate of return on investment, liberalization of the domestic financial market, and most importantly reform or macroeconomic policies that distort intertemporal relative prices, such as "incredible" trade liberalization or anti-inflation programs, and

(3) external opportunity cost of funds, **w**, such as recessions abroad, easing of regulations affecting the cost of access to capital markets by creditor countries, bandwagon effects.

Our interest here is to incorporate into the model variables that might serve as policy handles to the management of capital flows and take the convention (which is different from the Fernandez-Arias and Montiel and only a matter of interpretation) that increases in each of these variables leads to a reduction in the interest differential:

$$i - i^* = F(c,d,w) \quad [7] \qquad \textbf{(10)}$$

$$\frac{\partial F}{\partial c} < 0, \quad \frac{\partial F}{\partial d} < 0, \quad \frac{\partial F}{\partial w} < 0$$

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7 The Fernandez-Arias and Montiel function is $F(c,d,w,S_{-1})$ where S is the stock of external liabilities of the capital importing country. Stock effects can be important,

The original model for **F(...)** was intended to model the global disposition of assets and differentiate between "push" and "pull" aspects of investment in emerging economies. For our purpose, we take **i*** to be exogenous. The use of a function **F(...)**, instead of a linear function of **c**, **d**, and **w** is meant to provide the possibility of studying dependence (cross partial derivatives) between the variables.

We need finally to specify the determination of i^r . Can governments to attempt to influence the allocation of income between consumption and investment? A simple formulation is the following:

$$i^r = z_0 + z_1 i \tag{11}$$

where z_0 represents factors that raise the cost of consumer lending independent of the overall credit conditions, such as regulations and supervision over bank lending to consumers, and z_1 represents costs on consumer lending dependent on the level of credit such as taxes or specific reserve requirements.

The model can be closed further by specifying relationships between the exchange rate, the inflation rate, and the international interest rate. As would be normal for prices of promises-to-pay-in-the-future, these other dependencies are market-determined but in markets that are particularly susceptible to expectational estimates and mistakes, herd and other behavior associated with bubbles, and government ability to print paper (money, certificates of indebtedness, and other promises to pay in the future). The model can also be generalized a bit more by having at least three, instead of two, domestic assets - money, government bonds, plus corporate bonds.[8] This will permit foreign demand for the limited supply of corporate bonds to affect the interest on government bonds in the upward direction. There are a variety of closures between the "rates" in the model, each of which have implications about the ability of public authorities to achieve their various targets.[9]

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particularly of the type which involves the end of portfolio readjustment on the part of external investors, but not important enough for the present purposes.

8 Putting two or three instead of 10 interest rates in financial model still does violence to a realistic closure of the model.

9 Two examples are Reinhart and Reinhart [995] on the impact of changing banking reserve requirements and the very contingent specification of Woo and Hirayama [1995] which permits them to draw a "kinked" balance of payments schedule around the vicinity of the equilibrium (Figure 2).

The literature suggests that these closures can be quite specific to each country, for each country, conjunctural, and susceptible to informational signals from the government. The tradition of secrecy in central banking decisions is secure, and analysts are left to discern some of these closures by analyzing data that certainly contains both successful and ineffective policy efforts. For the present, we are content to leave this part of the model open (without closing the door on specifying these relationships further) and concentrate on the policy settings available to public authorities in attempting to affect variables that are in their compositional preference set.

It is also important to point out that the analysis applies to situations in which the positions of three key schedules are reasonably predictable as a function of their "right-hand side" variables. In particular, when large changes in the demand for money underlying the LM schedule changes, as might have happened in Mexico in 1994 (Calvo and Mendoza [1996]), then the model is not applicable in the same way. The analysis there applies to policy in response to capital inflows in non-crisis or pre-crisis situations.

With the proper substitutions the **IS** equation becomes:

$$Y = \left[1-\alpha_C\left(\frac{v}{P}\right)\right] C(z_0 + z_1(F(c,d,w)+i^*), Y) + (1-\alpha_I) I((F(c,d,w)+i^*, Y) + (1-\alpha_X) X\left(\frac{v}{P}\right) \tag{12}$$

The ability to let the currency appreciate in response to capital inflows is still in the model:

$$\frac{\partial Y}{\partial(\frac{v}{P})} = -\frac{\partial \alpha_C}{\partial(\frac{v}{P})} C(\,) + (1-\alpha_X)\frac{\partial X}{\partial(\frac{v}{P})} > 0 \tag{13}$$

An appreciation (a reduction in **v/P**), would contractionary, through higher imports driven by consumption and lower exports. More important, there are now a few other policy instruments:

$$\frac{\partial Y}{\partial c} = \left[1-\alpha_C\left(\frac{v}{P}\right)\right]\frac{\partial C}{\partial i'} z_1 \frac{\partial F}{\partial c} + (1-\alpha_I)\frac{\partial I}{\partial i}\frac{\partial F}{\partial c} > 0 \tag{14}$$

The same kind of expression would also apply to the variable **d**. An increase in the variable **c** or **d**, for example a signal of improving credit-worthiness or greater determination to maintain a stable exchange rate, would be expansionary. In order to counteract capital inflows, authorities must attempt to reduce the values of **c** and **d**. Authorities should actually resist "market" judgements that the country's credit worthiness is improving and increase the uncertainty with respect to the exchange rate.

The previous policies in response to capital inflows were contractionary on both consumption and investment. Authorities can act on consumption directly through:

$$\frac{\partial Y}{\partial z_0} = \left[1 - \alpha_C\left(\frac{v}{P}\right)\right] \frac{\partial C}{i^r} < 0 \qquad \textbf{(15)}$$

$$\frac{\partial Y}{\partial z_1} = \left[1 - \alpha_C\left(\frac{v}{P}\right)\right] \frac{\partial C}{\partial i^r}\left[F(c,d,w) + i^*\right] < 0 \qquad \textbf{(16)}$$

by putting a damper on financial intermediation activities into consumer lending.

Substituting Equation (10) into the **LM** schedule, and total differentiating:

$$\frac{\partial Y}{\partial c} = \left(-\frac{1}{\frac{\partial L}{\partial Y}}\right) \frac{\partial L}{\partial i} \frac{\partial F}{\partial c} < 0 \qquad \textbf{(17)}$$

The same kind of expression would apply to d. Reducing the certainty, that is increasing the uncertainty, with respect to the exchange rate will force the **LM** to shift down, whose macroeconomic impact is equivalent to an exogenous increase in the demand for money.

Substituting the "financial system" into the **BP** of Equation (3), differentiating, and defining :

$$\eta_Y \equiv \alpha_C\left(\frac{v}{P}\right)\frac{\partial C}{\partial Y} + \alpha_I \frac{\partial I}{\partial Y}$$

provides the impact of the financial intervention on the **BP** schedule:

$$\frac{\partial Y}{\partial z_0} = -\frac{1}{\eta_Y}\alpha_C\left(\frac{v}{P}\right)\frac{\partial C}{\partial i^r} > 0 \tag{18}$$

$$\frac{\partial Y}{\partial z_1} = -\frac{1}{\eta_Y}\alpha_C\left(\frac{v}{P}\right)\frac{\partial C}{\partial i^r}[F(c,d,w) + i^*] > 0 \tag{19}$$

$$\frac{\partial Y}{\partial c} = -\frac{1}{\eta_Y}\left[\alpha_C\left(\frac{v}{P}\right)\frac{\partial C}{\partial i^r}z_1 + \alpha_I\frac{\partial I}{\partial i} - \frac{\partial KA}{\partial(i-i^*)}\right]\frac{\partial F}{\partial c} < 0 \tag{20}$$

with an expression similar to Equation (20) for **d**. Restraining credit for consumption and increasing the uncertainty to foreign investors on their return to domestic assets permits the **BP** to shift upward in counteraction to its downward shift as a result of reduced international interest rates, **i***.

An example of the working of the model is given in Figure 3, where a change in either $\mathbf{z_0}$ or $\mathbf{z_1}$, interpreted as restraining consumption finance in response to capital inflows, is drawn. Starting from point **F**, at the intersection of $\mathbf{IS_0}$, $\mathbf{LM_0}$, and $\mathbf{BP_0}$, capital flows force a shift of the **BP** curve downward to $\mathbf{BP_1}$. At this point, monetary authorities either have to accept higher inflation or growth rates by accepting the monetary influsion and letting the **LM** curve shift outward (not drawn) toward the equilibrium point which Frankel [1994] labels "**M**" to stand for the monetary approach to the balance of payments. The other choice is to accept a reduction in output by permitting the currency to appreciate (the equilibrium point is labelled "**A**" for appreciation) and letting the **IS** curve shift inward to $\mathbf{IS_1}$. Based on equations (15), (16), (18), and (19), restraining consumption lending will permit a shift upward of the **IS** and **BP** curves shown in dotted lines which will allow for some currency appreciation (and reduction in output), no increase in the money supply, and some reduction in export levels, but not as much as in the equilibrium at point **A**. There are tradeoffs in among the "compositional preferences" but the cost has been reduced.

If authorities are willing to take advantage of Equation (17) and increase the wedge between **i** and **i***, they can manage to move the **LM** outward and minimize the output loss, if not the export loss too, since in this case the **BP** schedule can shift upward a little bit more based on equation (20).

The actual elaboration of the variables of the model takes place in the next section, which casts these variables in their operational form.

In designing and evaluating country responses to capital inflows, the model suggests the following considerations:

(1) Changing the intermediation parameters of the domestic financial system with regard to external resources can shift the real market (as in Equation (14)), the money market (Equation 17), and the balance of payments market (Equation 18) all in the same direction. This is at least one theoretical consideration resolved. While it is easy enough to take total differentials and solve algebraically, the question is in the quantification of the response to the specific quantity of capital inflows.

(2) There is some value in using the financial system to restrain consumption in the sense that such policies not only the **IS** (Equations (15) and (16)) but also the **BP** market (Equations (19) and (20) in the right direction. (That the **LM** schedule is unaffected is mainly due to the absence of an elaborated model for the determination of **Z**, "the" money supply.) This kind of policy response is akin to (and in the opposite direction of) the infamous Korean policy of using the financial sector to promote exports while running a protectionist trade regime.

Figure 4 illustrates the use of the model to depict a "compositional" choice. In the northeast quadrant, the **IS** shifts downward from $\mathbf{IS}_0$ to $\mathbf{IS}_1$, a shift that can be achieved either through an appreciation, a reduction in government, and so on. Figure 4 illustrates the case in which the cost of financing consumption is increased through Equation (11). This permits the savings schedule to shift to $\mathbf{S}_1$ and the new equilibrium, while at a lower level of income, permits a higher savings and investment rate.

4. CAPACITY FOR INTERVENTION

An extensive discussion has emerged over the capacity of governments to influence simultaneously their domestic interest rates and the level of their exchange rate while retaining the degree of openness to capital inflows and financial liberalization they have already achieved.

The capacity-to-respond rests heavily on the extent of monetary independence enjoyed by these countries and the issue is normally formulated in terms of the "impossible trinity": that one cannot have (1) open financial markets, (2) fixed exchange rates, and (3) monetary independence at the same time. There is a corresponding discussion about whether Asian emerging economies

(specifically Malaysia and Indonesia) enjoy relatively more scope for monetary policy than other economies, a discussion started by Reisen [1993] and taken up by others (Woo and Hirayama [1995]).

The Asian cases suggest that the ability to renounce the "impossible trinity" depends on the capacity and the devotion of monetary authorities in the use of **non-price** mechanisms in monetary management. In the original sense, monetary authorities have always had "moral suasion" over the private banking, they also have regulatory oversight. One view is that the apparent advantage of the Asian cases arises from incomplete financial liberalization and privatization so that the economy is not as responsive to international interest rates and authorities have the means to reallocate domestic liquidity by redepositing pension funds and ordering banks to temporarily place their deposits with the central bank. Using the IS-LM framework, Frankel [1994], interprets the apparent Asian capacity to set monetary aggregates/domestic interest rates as evidence of lower elasticity of the goods and money markets to interest rates.

As economies get more complicated and larger, however, their financing requirements are more easily met through access to private foreign finance, which is most easily available with a more liberal financial system. What really matters in the debate over the existence/non-existence of monetary independence are two key issues: (1) determining the actual capacity of monetary authorities to intervene effectively and (2) determining the most beneficial approaches to financial liberalization and regulation, not only in terms of speed but in terms of which kind of powers monetary authorities might either want to reserve for themselves or should be open to reinstating when called for by the situation.

Griffith-Jones [1995] and ECLAC [1995] use three levels to categorize the policy responses to capital inflows. Here we will take the categories suggested, but generalize them somewhat to include other, non-strictly monetary policies.

4.1 Intervention in the exchange market

The first level is situated in the foreign exchange market, as monetary authorities face the choice of either accepting currency appreciation or attempting to moderate the threatened currency appreciation by accumulating reserves. The first level of intervention is distinguished by the fact that there is no attempt to influence the level of aggregate demand. In terms of the model in

the previous section, in the first level of intervention seeks to prevent the downward shift of the **BP** curve, or moderate its currency appreciation impact. The limit of accumulating reserves is that this will ultimately increase domestic liquidity. This will mean an inflation. Other policies intended to lean against a shift in the **BP** curve that one might include in this level are:

(1) Liberalizing (or speeding up the liberalization of) the current account, which is expected to put pressure towards a higher (weaker) real exchange rate,

(2) Liberalizing (or speeding up the liberalization of) capital outflows.

The latter two policy options have longer term consequences and their implementation normally is based on long-term considerations. In a methodical world, the speed of liberalization should be adjusted principally on the orderly adjustment of domestic industries and financial institutions. In fact, advocating these policies as a response to capital inflows is putting the cart before the horse in policy terms. The reason for leaning against currency appreciation in the first place is that it undermines the required real adjustment under a trade liberalization program and prudent financial development in the case of a capital account liberalization program.

Moreover, implementing trade and capital account liberalization at the conjuncture of a capital inflows problem does not guarantee a quantitatively sufficient counteracting response. Reinhart and Dunaway [1996, p. 23] identify three reasons. First, it presumes that capital controls had been effective before the liberalization. Second, most of the outgoing investment would have to be undertaken by domestic residents who might not have the sufficient capacity to identify profitable investment opportunities abroad. There is a quantitative (but not qualitative) difference with the matter of flight capital in which residents to place assets abroad no matter the expected return because of **extremely** low return expectations on domestic assets. Thirdly, it assumes that gross inflows themselves are not going further encouraged by the customarily positive international interpretation of trade and capital account liberalization.

(3) "Virtual" intervention

"Virtual interventions" are those in which monetary authorities send only informational signals in order to talk the markets into moderating behavior they consider inconsistent with monetary targets. Threats of devaluation/revaluation, pronouncements about interest rates, and so on all have their role to play in

both advanced and emerging economies. The ability of governments to carry out the announcement, such as the existence of sufficient international reserves, and the past record of credibility brings about the result. The more often it is used, the less effective it is. The informational game can also be a complicated cat-and-mouse affair; sending signals of poor prospects can be self-fulfilling or it can induce more interest from external investors seeking financial assets at bargain prices.

4.2 Intervention to influence level and composition of aggregate demand

In the second level of intervention, authorities are willing to permit changes the level of aggregate economic activity, by influencing the level and composition of aggregate demand. There is a rich menu of policies:

(1) Reduction in the government deficit to counteract the expansionary impact of capital inflows.

One measure would be to reduce government consumption.[10] In terms of the IS-LM-BP model this would mean a reduction in **G,** permitting the IS curve to shift downward, without an appreciation of the currency, and expressing the compositional preference for exports and tradeables. One advantage of this policy is that reducing government spending which is heavily weighted toward non-tradeables, reduces the pressure on currency appreciation. The tax effort can also be increased.

The political problem of timely and sufficient response is the normally cited limitation of this policy. But there is a more fundamental objection. Reducing government consumption as proportion of GDP as a response to capital inflows presumes that there are always expenditures that can be cut for purposes of macroeconomic management and contradicts notions about the optimal size of government and its effective participation in specific economic activities, sometimes innappropriately counted into government consumption, such as expenditures for education. A parallel objection with regard to increasing the revenue effort along the lines of the incentive ("supply-side") impact of the tax system can also be made.

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10 Thailand is credited with using this policy in 1988-91 (Reinhart [1996] and Nijathaworn and Dejthamrong [1994] for example.

(2) Banking regulation and supervision and restricting consumer credit

The marked increase in consumer lending was an element in the Mexican crisis. Banks operate on the "mismatch" in maturities between their liabilities and claims, and take their risks on the reversal of confidence by their depositors and liquidity-providers. Foreign capital inflows provide further opportunities for taking advantage of mismatches among claims and liabilities in different currencies and to undertake additional risks based on the probability of a reversal or slowdown of external capital flows. Evidence of increasing vulnerability of bank portfolios in the era of capital inflows is particularly strong in Latin America (Rojas-Suarez and Weisbrod [1995]); for Thailand see Okuda and Mieno [1995]). Because of the existence of explicit and implicit lender-of-last-resort, monetary authorities have the power to regulate and supervise the extent of these mismatches and the riskiness of banks portfolios. Regulation to insulate the banking system from short-term capital flows and which limits their susceptibility to volatile swings in equity and real estate markets (Reinhart and Dunaway [1996, p. 249]) are valuable in and of themselves. Moreover, tightening regulations in the situations of capital inflows have the proper macroeconomic direction of influence; in the model of the previous section this is equivalent to a decrease in the level of the variable **d**, and if these are especially targeted to consumer loans, an increase in the values of $\mathbf{z}_0$ and $\mathbf{z}_1$.

The potential for independent domestic action derives from the fact that financial systems depend not only on one or two interest rates, which analysis, and policy inspired by them, has confined itself to. Certainly, interest rates are linked, but even authorities in industrial economies attempt to influence their term structures.

(3) Changing reserve requirements in the banking system

Reinhart and Reinhart [1996] examine the strong potential of reserve requirement strategy in responding to capital flows. In terms of the model in the previous section, the impact of increasing reserve requirements would be through the variable **d**; if banking supervision undertakes greater detail and differentiates between consumer lending and other projects, required additional loan loss provisions on consumer loans could also shift the **z** coefficients in the right direction. In the policy context of emerging economies which have began to shift to capital adequacy based supervision of the banking system, considering variable reserve requirements is a throwback to ancient times,

when ideas such as "fine tuning" - the reserve requirement being a particularly 'unfine' instrument - were part of the vocabulary, even private banks were extensions of monetary policy, and governments were presumed to enjoy an informational advantage. Not to consider the instrument, however, would be another exercise in market fatalism (even though one must admit that mothballing this instrument has removed a lot of conflict between central and private bankers). The argument can be made that (1) shifting to capital adequacy supervision for longer term supervision does not conflict with using the reserve requirement for short-term response and (2) the instrument can be powerful.

The limit of this policy is that too large and too sudden increases in reserve requirements can themselves occasion financial instability. This instrument would in fact be practically unavailable if the previous monetary expansion associated with the capital inflows had been associated with a weakening in the portfolio status of the banking system.

Higher reserve requirements also encourage the emergence of financial intermediaries that are beyond the supervision of monetary authorities (Khan and Reinhart [1995, p. 28].

(4) Sterilized market intervention

This policy response to capital flows has spilled the most academic ink, not the least because almost all emerging countries have attempted it. Public authorities attempt to intervene both in achieving a target exchange rate (by standing ready to purchase foreign exchange near the target exchange rate) and a target money supply (by taking away part or all of the liquidity impact of foreign exchange purchases through the sale of central bank notes or treasury bills). Because the supply of financial instruments in many economies are quite limited, monetary authorities have often resorted to creating new supplies of public indebtedness in order to sterilize enough of the foreign exchange inflows. Public authorities accept losses on the operation, since they normally have to offer high interest rates on the bills and earn lower interest returns on the placements of their own investments, typically in overseas bills. Gurria [1995] estimates that the cost of Mexican sterilization as much as 2.5 per cent of GDP. Domestic interest rates are bid up by the operation, which in turn invites further capital inflows. Because domestic resources are in effect sucked into the vaults of monetary authorities, the operation in effect inflicts disintermediation if the banking system is thin, since domestic banks are more than willing to earn their

money on government instruments and avoid the effort of project appraisals and loan supervision.

The consensus is that this instrument can be effective for limited periods of time. It undermines itself and has to be abandoned when the public costs become too high. In 1990s, it appears as if the time scale of the capital inflows exceeded that of the capacity of public authorities to respond with this instrument. Eventually, with the expected completion of the portfolio adjustment effects in the source countries, the severity of the external pressure might subside and market-based sterilization has the potential of being effective instrument. However, as long as domestic financial markets remain thin, its self-contradicting impact of causing the rise of domestic interest rates will require that it be used only in conjunction with other instruments, such as increasing the variability of exchange rates.

(5) Sterilization through the shifting of government funds

The Asian cases (Indonesia, Malaysia, Singapore, Taiwan) have typically been cited as having successfully utilized this approach (Reisen [1993b]). Governments have control over certain portions of the financial system, not only banks (of which Indonesia has the greatest), but also pension funds, and assets from export proceeds (oil revenues in Malaysia). In order to counteract the liquidity impact of capital inflows, these funds have been ordered placed into sterilized instruments at specific situations. The operation is like sterilized market intervention, but without having to compete in the market for domestic resources, avoiding the bidding up domestic interest rates. It is thus a form of, dare we say it, financial repression (see Reinhart and Dunaway [1996]), with the owners of the pension funds bearing the direct cost of non-market returns.

The trends toward privatization of the banking system will continue. The privatization of pension funds, quite apart from stories of Chilean success in this regard, will not be as fast, at least in Asia where neoclassical fashions tend to have a slower rate of acceptance. The capacity of governments to change the investment portfolio of pension funds are governed by specific laws and corporate rules; governments should at least recognize what powers they have in this regard. Even where the government has actual control of such funds, reinvesting these funds by government fiat in economies with a limited record in stable macroeconomic management can be financially destabilizing and politically difficult, if the last years of the Marcos regime in the Philippines is any guide. As in the case of market stabilization, this is a contingent, limited

strategy but is one that actually takes advantage of, instead of surrendering to, the shallowness of domestic financial markets.

The matter of sterilization brings to the fore the question of whether, as suggested by Reisen [1994], governments should actually put effort into creating domestic financial instruments (whose proceeds could then be sterilized) that would satisfy the demands of foreign and domestic investors, without bidding against other investment alternatives. There is really nothing to prevent governments from creating its own "derivatives." Except perhaps for the issuance of Malaysian savings bonds in February 1993, there has been little experience in this regard, though it would be expected that government-controlled funds would have a large part to play in the making the markets for these instruments. Where governments have the *savoir faire* to resist the market-oriented tide, the creation of these instruments can actually help widen the domestic financial system.

(6) Exchange revaluation

As had been noted above, revaluing the currency can cause a reduction in output and exports, as a consequence of a capital inflow pressure. Reisen [1994b] cites the case of New Zealand where the strong exchange rate after capital account liberalization imposed the loss of foreign markets for domestic exporters and a postponement, if not cancellation, of investment in export activities. Calvo Leiderman, and Reinhart [1994] list the advantages of revaluation response. It insulates the money supply, domestic credit and banking system from the flows so that when the flows are reversed there is a limited impact on the financial sector, especially when banking supervision is weak. Revaluation is anti-inflationary. A country's competitiveness (so-called "fundamentals") might actually call for a real exchange appreciation.

Thus, exchange revaluation arouses the conflicts between the financial and the real sector (the latter often being reoriented toward exports in a liberalization program) and between short-term and medium term policy (how soon a country should resign itself to its "fundamentals" by revaluing its exchange rate). In the 1990s, exchange rate revaluation has been rarely used and not in Asia, except for the Philippines where it was politically controversial with the nontraditional export sector. It also the case that these inflows have affected even countries where judgements of improved fundamentals are only a gleam in the eye of the representative Bretton Woods reformer, such as in a few African economies, indicating that countries should be circumspect about the possibility that "push"

factors in the source countries instead of its fundamentals might be dominating the flows. If so, are these countries powerless to resist the market pressure for currency appreciation?

(7) Increased exchange rate variation

Increasing exchange rate variability creates uncertainty in returns to foreign investment, especially for investors oriented to short-term returns. Consequently it changes the value of **c**, the indicator of external credit worthiness, the ability of the economy to service its external obligations, in the model of the previous section. This instrument permits governments to "punish the speculators" (Woo and Hirayama [1995]) and provides a certain degree of monetary independence.

Grobar [1993] suggests that the increased variation in the exchange rate can hurt tradeable goods sector, though it is not clear if, like inflation, there is a threshold beyond which uncertainty has significant impact. The capacity to "be unpredictable" with regard to the exchange rate requires support from the government's treasury department and depends on a cushion of reserves that can be drawn upon to carry out the operations. In Latin America, the policy often announced as widening the band within which the exchange rate can fluctuate. In Asia, the normal approach is to use a peg based on an basket of currencies with secret weights.

4.3 Intervention to control the level and composition of capital flows

In the terracing of policy groups, direct controls on the level and composition of capital flows has been chosen as the last level; actually, restrictions on foreign participation in capital markets existed before the liberalization era, imbedded not only in government regulations but also in domestic corporate rules. The principal characteristic of these policies is the use of regulatory and tax measures to inhibit or make costly attempts by local firms to accept foreign liabilities or foreigners to buy domestic financial assets. Their success is measured in the extent in which they limit capital inflows and the extent to which they prevent a shortening in the maturities of foreign liabilities. The limit of all of these policies is that once imposed they become subject to circumvention. These measures must be designed to limit such behavior, but investors always have other well-known, more traditional, routes, such as the under-invoicing of imports.

There is a large variety of interventions that are counted in this category. The most famous of these measures are those imposed by Chile in 1991 which imposes a non-interest earning 30 percent reserve requirement on foreign currency liabilities from the borrowings of domestic companies. Colombia beginning in 1993 imposed a similar but more complicated tax, making adjustments for maturities and Thailand imposed a similar type of tax in 1996 (Reinhart and Dunaway [1996]). Brazil imposed a one per cent tax on foreigners investing in its stock market.

In Indonesia, Malaysia, Philippines and Thailand, banking regulations provide ceilings on commercial banks' net open positions, impose other restrictions on offshore borrowing and non-trade related swap activities. Malaysia's most drastic policy was the prohibition on the sale of short-term money market instruments to foreigners; Indonesia imposed similar restrictions in its stock market.

4.4 Policy mix

It is clear that most traditional policy instruments - the exchange rate and the money supply (the latter associated with some target interest rate) - have limited effectivity both in the time dimension and as instruments independent of other instruments. Moreover, all these instruments are not independent of the overall development stance and their interaction with the instruments of "virtual intervention." To give an example, increased exchange variation (a level 2 intervention) is very difficult to discern, even (or especially?) by professional economists. The observed path of nominal exchange rates might either be the result of non-intervention, the net result of limited intervention, or the result of unsuccessful intervention (in the direction that would not be easily interpretable even by analyzing monetary aggregates). It is a case of economists meeting their match - the market. When a country is publicly using an exchange rate anchor for stabilization, not only is it particularly vulnerable to "precautionary import demand" exacerbating its current account deficits, its other instruments, such as exchange rate variation, become less effective (Cardoso [1996]).

In the type of problem posed by capital inflows, traditional instruments are also "overcommitted" (Reisen [1996]) in at least two senses: (1) because there are limits of their setting independent of other variables (something not directly embodied in the model) and (2) they have impacts on more than one target

variable. The exchange rate affects both international competitiveness and the domestic inflation rate.

This makes it very difficult to evaluate individual instruments by themselves and one must contend with evaluating an inconstant policy mix. The approach that we take in analyzing experience is to consider each individual country's changing policy mix (and perhaps changing objectives), in light of its overall stance with regard to capital inflows.

4.5 External factors

The discussion so far has focused on the responses of capital receiving countries. A short discussion about international factors has some merit. In terms of the model, the two variables of interest are **i*** and **w**. Decreases and increases in interest rates in the industrial economies (the Washingtonian terminology is "international interest rates") in pursuit of their own macroeconomic objectives have proven hazardous to economies that have liberalized their financial and capital account sectors; decreases have sparked the inflows and increases the reversals of flows. The possibility of these types of swings requires developing countries to develop their response instruments and strengthen their financial sectors. In Asia, a response to more international cooperation on the problem began in 5 April 1996, when Japan's Ministry of Finance and the Bank of Japan signed a set of bilateral securities-repurchase agreements with six other Asia-Pacific countries and Hong Kong. Under the agreements, central banks needing U.S. dollars will be able to borrow from the Bank of Japan in order to defend their currencies.

The variable **w** represents the ease and encouragement by which capital in industrial economies are impelled to invest in developing countries. It embodies the tax and regulatory procedures governing investment overseas. A Tobin tax would reduce **w** and raise the interest rate at which emerging economies can use foreign capital. Capital investing overseas are, among other things, escaping costs and regulations that govern capital being invested domestically. The design of any additional levies and regulations on overseas investment would have to take into account the many channels of evasion and requires as a minimum cooperation and coordination among the major sending and receiving countries plus the capital haven countries.

5. ACTUAL EXPERIENCES

Just as there would have been eight million stories in the naked city when New York had eight million residents, there would be as many explanations of policy responses to capital inflows as there are countries receiving them. We analyzed the principal macroeconomic indicators of five Latin American economies (Argentina, Brazil, Chile, Colombia, and Mexico), and six Asian economies (China, Indonesia, Korea, Malaysia, the Philippines, and Thailand).

There is an ongoing debate about the experience of Mexico as the apotheosis of the key elements of the capital inflow problem, with writing taking on the proportions of Gaboan[11] fantasy. In "Chronicle of a Death Foretold ...", Calvo and Mendoza [1995] discuss the fundamental misalignments of prices and deficits apparent one year before the crisis year of 1994. In "One Year of Solitude...", Gil-Diaz and Carstens [1996] forcefully argue that prior to Mexico's 1990s crisis, there was nothing fundamentally misaligned about Mexico's prices and deficits; the principal cause of the crisis according to this view was the panicky retreat by foreign investors in response to the series of political crises in 1994. Shifting to a Dostoyevskian perspective ("Petty Crime and Cruel Punishment..."), Calvo and Mendoza [1996], discuss the importance of stock comparability, especially between international reserves and the money stock and other short-term debt of the government. International investors can "punish" countries heavily, in response to a series of flow shocks, when the stocks of international reserves are very small in relation to short-term liabilities.

5.1 Chile, Malaysia, and Korea

The record of three countries, Chile, Malaysia, and Korea appear to straddle the experience of the countries that have endured the capital flow shocks of the 1990s and we examine their data for 1990 to 1994 in Figures 8 to 17. Total capital inflows are difficult to measure. Here, we use the sum of current account deficits and increases in reserves to estimate. Chile implemented a wide range of responses and received significant inflows, at the highest almost 10 per cent of GDP (as opposed to Brazil and Argentina which in the period had received or accepted less than 3 per cent in capital inflows, though the inflows into Brazil have increased since that period). Mexico's accepted inflows peaked at 8 per cent in 1993. Malaysia had a peak of 22 per cent accepted capital

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11 "Gabo" is nickname of Gabriel Garcia Marquez, the journalist.

inflows in 1993, and these were in the order of 11 and 15 per cent in 1991 and 1992. Korea is included for the main reason that Korea did not accept foreign capital inflows in any significant amount during the period. Korea's case is normally buried among the totals in the analysis of the Asian cases, but it represents the performance of a country that maintained strict controls on capital inflows during the period, while Chile and Malaysia are two contrasting cases that "rode the tiger."

Figure 5 shows real GDP growth rates to be quite comparable among the three countries. Korea experienced a dip in 1992 after two years of rapid economic growth was a result of (1) stabilization measures which increased the cost of credit and included restrictions on construction and (2) the slowdown in the growth rate of exports because of the slow world economic recovery. Truth to tell, the effort by the U.S. federal reserve to help the U.S. economy recover at this juncture caused U.S. interest to fall and sparked the flow of capital into emerging economies. Chile's growth increased just as capital inflows increased in 1992 and dropped down to more normal levels after 1994. Malaysia maintained a customary Asian-style growth rate hovering around 9 per cent during the period.

Figure 6 shows the strong capital inflows that characterized Malaysian experience in the 1990s, rising from below 10 per cent in 1990 to over 22 per cent in 1993. By contrast, Chile's capital inflows are quite moderate, though inflows threatening at around 10 per cent of GDP are quite substantial. Chile's effort of imposing reserve requirements on short-term foreign borrowings reduced the flows somewhat, which then resumed though at a higher, but non-increasing (relative to GDP) thereafter.

The contrast between Chile, which has been quite successful, and Malaysia with regard to the investment rate is shown in Figure 7. Chile's investment ratio declines in 1991, at the same time that capital inflows decline, and increase about 2 percentage points in the subsequent years. In the same period of strong capital inflows, Malaysia's investment rate ratchets up from 32 to 38 per cent of GDP. Korea's investment ratio, on a gently declining trend hovers at the same levels as Malaysia's. This is a specific example of the stronger investment performance in the period of capital flows.

Figure 8 shows that the export ratio has been increasing fastest for Malaysia, which is also an important oil exporter. Malaysia's export growth in the 1990s depended very much the growth of nontraditional exports.

Figures 9 (change in reserves) and 10 (change in liquidity) give clues to the overall strategies of Chile and Malaysia. Both attempted sterilization, but had permitted a portion of the inflows to emerge as liquidity (here measured as the change in money and quasi-money as a ratio to GDP). Chile, which is showing a downward trend in change in liquidity, appears to have sterilized more vigorously than Malaysia, if one were to compare trends in Figures 9 and 10. Korea shows very little change in reserves and a steadily increasing change in liquidity in the period. The values in the range of 8 per cent of GDP in changes in liquidity shown in Figure 10 are not insignificant, though these levels are in the range of Malaysia's real growth rate.

Figures 11 and 12 compare the trends in the inflation rate and a real interest rate measure. In both of these, Chile stands out as the volatile performer. In the case of the real interest rate, the two Asian economies are unequestionably below Chile's, and provides an indication that at least in this period, of the "subsidy for the future" aspect of Asian-style development strategy.

Figure 13 provides one explanation of Malaysia's relatively better performance in investment and exports. As a proportion to GDP, the amount attributable to direct foreign investment (here net foreign investment is the measure) was much higher than Malaysia (which also had much higher total capital inflows) than Chile. While Malaysia's direct foreign investment stayed at above 5 per cent of GDP, Chile's has just begun to rise above 2 per cent. Korea maintained its strategy of moving its shoe factories (more labor-intensive operations) to (overseas) Indonesia and Peru, and shows a net outward direct investment in the period.

A strategy to accept a greater proportion of external capital in the form of direct foreign investment requires much more than macroeconomic policy in which this paper is interested. In Asia, the access to the U.S. market, the network of finance from the overseas Chinese, and the network of local suppliers have been noted as key factors (Plummer and Montes [1995]). In Malaysia, in particular, early government investment in the semiconductor industry, which resulted in skill building, played a big role in attracting many of its export-oriented investments (O'Connor [1987]).

Figures 14 provides another explanation of Malaysia's better export performance. Malaysia's real exchange rates appreciated less than Chile's in the same period. (The data for Korea was unavailable for Figure 14.)

It should be emphasized that Chile's performance in each of the indicators has been quite effective during the period. Malaysia's growth rate were among the highest in the world, while Chile achieved strong steady growth in the same period.

5.2 Chilean policy

It has to be mentioned that Chile had experienced the original 1990s[12] Mexican style crisis in 1981, with the same conditions of massive short-term capital inflows, the crippling of the domestic financial system through "market-based" expansion of credit, overvaluation of the currency, and under a comparable, though perhaps more rabid, ideological stance with regard to state intervention as in Mexico. In the 1990s, Chilean policy toward capital flows took, instead, a very active, instead of passive, stance in the 1990s (Agosin and Ffrench-Davis [1995], to which this section owes much).

In Chile the "main consideration of exchange rate policy has been to protect the growth model adopted by the authorities, which is one based on the expansion and diversification of exports" (Agosin and Ffrench-Davis [1995, p. 9]. It sterilized almost completely the monetary effects of reserve accumulation. The purpose of sterilization was to meet the inflation target. Chilean policies can be understood in terms of a stance of the Central bank which "attempted to discourage short-term and speculative capital inflows, while maintaining open access to the economy for FDI." With regard to this stance, one can only comment that it is tantamount to public officials' arrogating to themselves the power to choose between investment projects and the methods to finance them, based on the compositional preferences we had listed in Section 1, and disregards views about the stabilizing role of speculation which Friedman had proposed in the 1950s.

In the case of the exchange rate, Chilean authorities chose to make long-term fundamentals prevail over short-term factors in influencing the exchange, based on another bold-faced claim of public officials' capacity to estimate long-term fundamentals better than the private sector.[13] The basis for these views have a long tradition - domestic financial and exchange markets *in developing*

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12 As opposed to the 1980s Mexican-style crisis.

13 Frankel [1996] reviews the sources of "market inefficiency" and destabilizing speculation in foreign exchange markets.

countries are too small and narrow to adequately represent long-term fundamentals.

Part of Chile's response in 1991 was to introduce "noise" into its crawling peg by three small abrupt revaluations and a compensating devaluation in the following months. In June 1991, it began the policy of imposing the non-interest bearing 20 percent reserve requirement on external credits, a tax it had to increase to 30 per cent in May 1991 in response to continued pressure. In January 1992, the exchange rate was revalued again by five per cent and the band expanded to 10 per cent. In March 1992, the Central Bank began a dirty float within the band. In July 1992, the dollar peg was replaced by a peg to a basket of currencies.

Chile found that easing restrictions on capital outflows had little effect of alleviating appreciation, which as seen earlier, occurred even with the strenuous efforts. More telling is the interpretation of Agosin and Ffrench-Davis [1995, p.12] to the effect that "[m]oreover, in the long run, such policies risk leaving too many doors open for outflows, which could be massive in case of market nervousness and shifts to expectations of currency depreciation."

The pressures declined in 1993, when export prices fell, came back in 1994 and declined in the same year with the Mexican crisis, but re-emerged again in mid-1995, indicating the need for a continuing effort and a stance based on a long view. It has been clear to Chilean policy makers that more liberalization and also more success in preventing currency appreciation provokes more pressure for capital to flow in and the effort has been a quantitative balancing act. The role of the reserve tax (and a stamp tax of 1.2 per cent for lending for up to a year) is credited for reducing the volume of attempted inflows and therefore the cost of sterilization and currency appreciation.

5.3 Malaysian policy

Malaysia's stance was one of a consistently tight monetary policy during the period of capital flows. It is presumed that this policy provoked even more inflows, as tight monetary policy keeps domestic interests higher than international interest rates. However, Malaysia approach was through the heavy user of the reserve requirement tool, as a way to reduce the money multiplier. It raised reserve requirements almost steadily from 4.5 per cent in 1989, to 6.5 in 1990, to 7.5 in 1991, to 8.5 in 1992, to 9.5 and 11.5 in 1994, and 12.5 per cent in 1996 (Reinhart and Dunaway [1996]). Along the way, Malaysia had to

close loopholes in reserve coverage. In September 1991, it incorporated all balances from swap transactions with non-residents, including offshore banks in the reserve coverage. In January 1993, the reserve requirement was extended to cover all foreign currency deposits and transactions (such as foreign currency borrowing from foreign banking institutions and interbank borrowing). An important contrast with Chile is that there was no direct singling out of short-term capital flows as a target of special taxes, following the Asian pattern of so far viewing the problem as one of maintaining monetary control.

Malaysia began sterilization efforts in 1990 and had to increase these substantially in 1992 when inflows increased tremendously. In February 1993, Bank Negara (the central bank) had to issue its own bills to, equivalent to as much as 23 per cent of the year of the previous year's foreign exchange reserves in that year alone. As mentioned earlier, Malaysia began to experiment in selling Malaysian Savings Bonds in 1993, as a new instrument of sterilization.

Malaysia resorted to "administrative measures" to carry out a significant part of its sterilization. In April 1990, government deposits that had been placed in the banking system and were maturing in that year, about $3.7 billion, were withdrawn from the system and deposited with the central bank. Between 1992 and 1994, the government also resorted to transfer of the employee provident fund deposits, the total of which constitute 20 per cent of total domestic financial assets (Reisen [1994c, p. 24]) to the central bank. Malaysia imposed ceilings on the swap balances of commercial banks and on their net open foreign position, imposed temporary restrictions on residents selling short-term securities to non-residents (Griffith-Jones [1995, p. 19].

Malaysia's efforts can interpreted either as a case of naiveté about the possibility of monetary autonomy (ADB [1995, p. 109]) or the confident utilization of financially repressing instruments in defense of monetary independence. The strong growth and modest real exchange appreciation in this period suggests that even the continually losing battle, which was also presumably costly to domestic savers, might have been worth the effort.

5.4 Korean policy

As explained earlier, Korea was undergoing a stabilization-induced growth slowdown in the capital outflows episode of the 1990s. Except as itself a source of direct investment, Korea was a noticeably small participant the capital

flows episode of the 1990s. This is not to say that debates over the liberalization of the financial and capital accounts did not occur among Korean academics and policy makers. It is also important to say that Korea has already been under considerable *gaiatsu* (to use a Japanese term for the wrong country) to liberalize the participation of U.S. financial institutions in its domestic market. Because of its application for membership to the OECD (which Japan is sponsoring to increase Asian participation), Korea is now under additional pressure to liberalize its capital account but it is likely that Poland will be able to complete membership before Korea.

Reinhart and Dunaway [1996, Table 1a] mention a sterilization episode in Korea in 1993 which consists of the start of bond auctions of monetary stabilization bonds. One might say that this was not only a sterilization operation, it was also the start of a genuine money market. Prior to this, open market operations consisted of a mandatory allocation scheme in which the Bank of Korea allocated securities at below market rates to the banking system.

The banking system has been traditionally the means by which development plans have been realized. Korea only introduced negotiable certificates of deposits in 1984, opened the life insurance industry to foreign firms in 1988, liberalized all bank **and non-bank** lending rates in 1993, liberalized rates for short-term marketable instruments in 1995. It still has to liberalize deposit rates, allow foreign borrowings through commercial loans, and wean its exchange system away government fiat.

While the standard M2/GDP ratio has hovered at around 40 per cent since 1970, financial deepening is proceeding rapidly; the M3/GDP ratio increased from a little over 40 per cent in 1980 to almost 140 per cent in 1993 (Won Am Park [1996]). However, with such a restrictive system especially on external transactions, Korea is still watching out for capital flowing out, instead of as in the case of Chile and Malaysia, preventing capital from flowing in. We have already mentioned how Korea's negative net direct foreign investment in the period. In the same five-year period, Korea had a cumulative short-term capital outflow equivalent to 12.1 per cent of GDP.[14]

The Korean case illustrates that isolation from short-term capital markets is not necessarily harmful at the same time that it raises questions about the

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14 Computed from the "usage of external debt" table from Park [1996].

prospects of orderly market establishment as Korea's capital requirements diversify.

6. CONCLUSION - LOVE IN THE TIME OF CHOLERA

The 1990s had seen Latin America's reconciliation with its long lost (for almost a decade) access to international capital markets, along with the old quarrels. In East Asia, which only began reconstructing its state institutions[15] (which had regressed since the 16th Century) in the Cold War period, states faced the same enticements of private capital flows but were reluctant to yield their monetary control mechanisms and, partly because of a limited history in balance of payments crises, exhibited less market fatalism and were more confident in their ability to fend off these advances. While Latin America (not Chile) tended to welcome all forms of foreign capital, Asian countries (not Korea, which had not liberalized its financial sector sufficiently) reacted in a manner designed to defend their ability to carry out independent monetary policy. The difference in reaction and performance lie not geography, but in history, institutions, and development stance.

Are there any lessons from recent experience that might be of interest for economies differentiated by geography, institutions, and development stance? I suggest the following list organized around important themes from Gabriel Garcia Marquez's *Love in the Time of Cholera*:

(1) The essentiality of purpose (meaning)

The understanding of the role of international short-term and equity capital flows in the development process must wait until the experience we have reviewed, which is barely a decade old, has generated more data. In the case of the industrial economies, it is not obvious that short-term and equity markets are important sources of capital, without profaning their role as institutions in which risk can be traded (Stiglitz [1993]). The possibility exists that they might play a more positive role for capital-needy economies and this is the bet that government officials, except so far in Korea, are making. That these risk-sharing, risk-diversifying markets might have a positive role to play is not the same proposition as that they are essential to development, notwithstanding the

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15 Many, such as Indonesia, Thailand, and Malaysia are still in transition. China's legal system is rudimentary.

analytical work they create for economists. Korea's per capita income is 2.3 times that of Chile and Malaysia.

Because of the pervasiveness of market failures in capital markets, states have a role to play in the operation and governance of capital markets (Stiglitz [1993]). The question is, when it comes to external capital flows, what principles should authorities follow? (The regulation of international markets is a related, but separate, question.) Our review of the set instruments raises the possibility of the domestic generals of monetary management getting lost in labyrinth of state intervention and financial repression.

The Chilean case provides a clear example of intervention based on a clear objective and a clear purpose. The question then arises: in a development context, on which objectives should one anchor one's set of interventions and repressions? In the Chilean case, the objective is the growth and diversification of exports (which is again slightly different from the objective of "international competitiveness"). In this permissive age, should the objective be the speed of convergence of domestic prices and inflation and interest rates to international levels, as appears to be the case in Argentina? Should these objectives instead be more explicitly compositional, as we suggested, such as the investment ratios, in the context of an overall development strategy?

(2) The importance of constancy and contingency, both

As explained above, monetary authorities have to play a "game" of perception and countermove with international investors. The game is played as long as international investors have the resources and government can afford to bear the cost. This requires constant vigilance over the state of flow deficits and how consistent their trends are with are with long-term objectives. In Chile's case, this monitoring included an official distrust of the raw signals asset markets were generating.

A key element of constancy is in prudential regulation of the banking system. While the expansion of the banking system can be financed by short-term and equity flows, there is no need to produce internal sources of financial instability when the proportion of bad loans in the banking system rises. In actual experience, the question arises differently. What should policy be when capital inflows surge while the banking system is in a poor state? The scope for tighter monetary policy would be weakened, but absent a large currency crisis, a

capital inflows episode would be an opportune time for efforts to clean up bad assets in the banking system.

The experiences also suggest the importance of flexibility of response as a minimum and actually some unpredictability on the part of the government, if possible. Reserving and applying the power of greater flexibility in the exchange rate, the occasional noticeable revaluation and devaluation appears to be critical, as is the willingness to ratchet up reserve requirements.

(3) The eternal search for independent action and the advantages of relative isolation

Can countries free themselves of their fate in the international division of capital risk and prosecute their development objectives? Can they pursue independent monetary policy?

Our review suggests that the further development of domestic financial markets can have positive effects on independence, as long as the approach does not allow the ideology in favor of increasing the sophistication of markets get ahead of the objective of creating institutions that support investment activities. We have mentioned the possibility of governments putting effort into enlarging the sterilization bond market, by creating new instruments, such as the Malaysian savings bond. Improving banking supervision and developing credit rating services for domestic equity and corporate bond markets are also in this category.

There are other policies that are important. If an active policy is to be pursued, governments have to retain key elements of their data reporting requirements on external capital flows and improve their coverage and reliability. The experience also suggests that attention to stock compatibilities, such as that between the size of international reserves and the short-term liabilities. Reserve build-up, with the possible attendant costs of sterilization, must be seriously considered.

Then there is the choosing over types of investment offers from external sources. The experience and other related work suggest the great difficulty in changing the composition toward direct foreign investment and that the most reliable approach is to attempt to discourage "volatile" (which we had mentioned as difficult to categorize) investment. In actuality, the question is posed this way: is letting seemingly volatile offers of capital a necessary evil (as one

among other incentive policies, many of which have proven unimportant) to attracting long-term investment?

Finally, there is the question of international cooperation, which has the potential to reduce the internal costs of response and control on the part of capital receiving countries and to protect the interests of savers in the source countries.

Figure 1:
Letting the money suppy increase in response to lower world interest rates (liberalized economy)

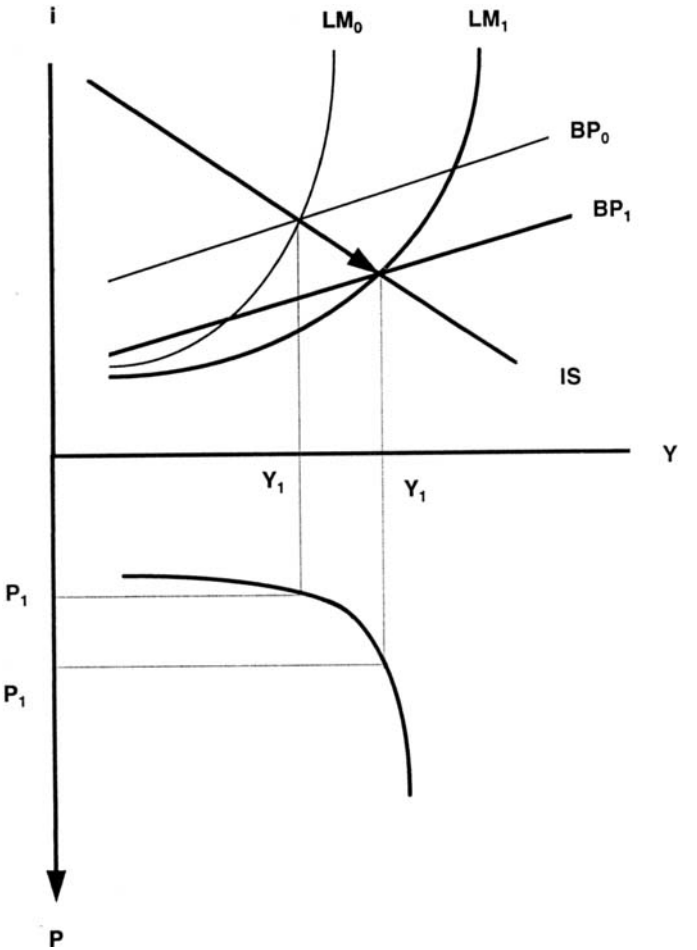


Figure 2:
Kinked BP curve

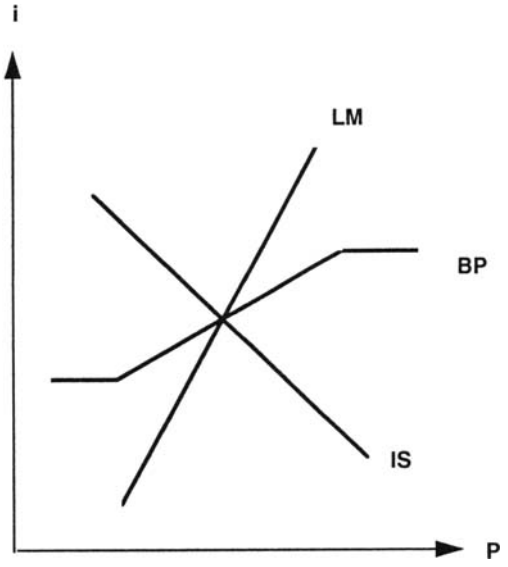


Figure 3:
Discouraging consumption lending in response to lower world interest rates

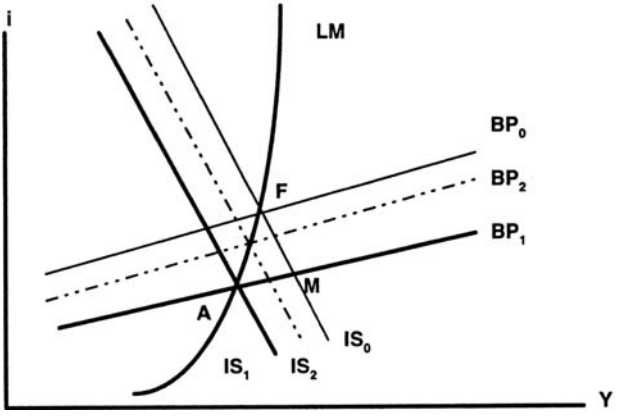


Figure 4:
Example of compositional preference, restricting consumer credit instead of revaluation

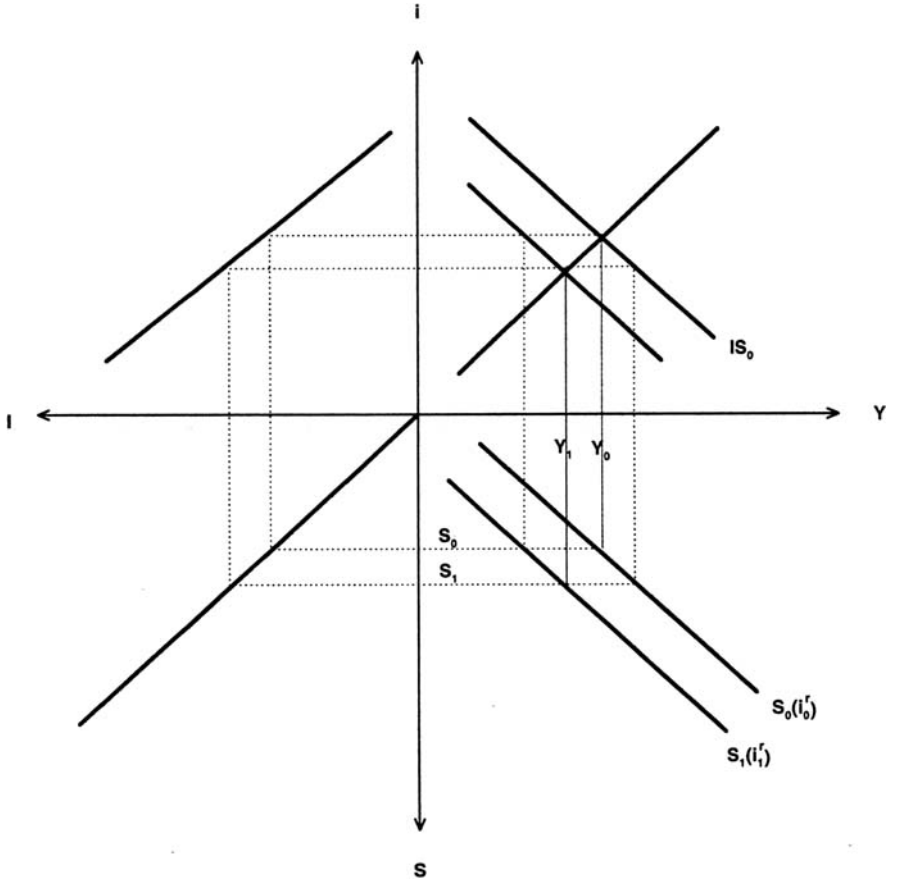


Figure 5: GDP growth rates

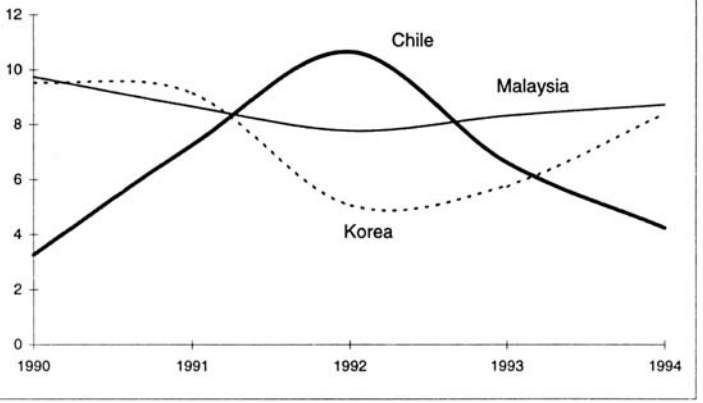


Figure 6: Capital inflows

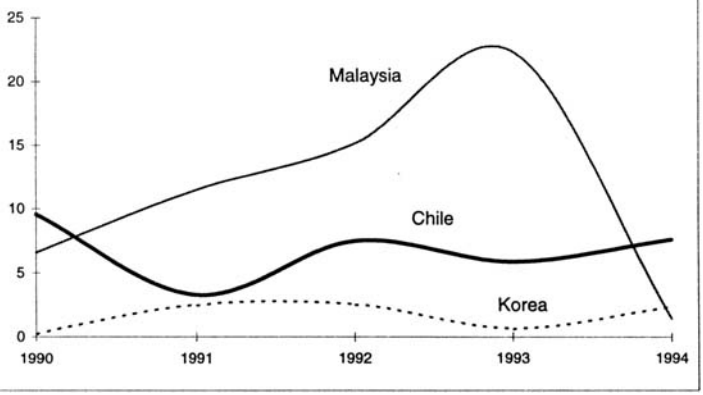


Figure 7: Investment/GDP ratio

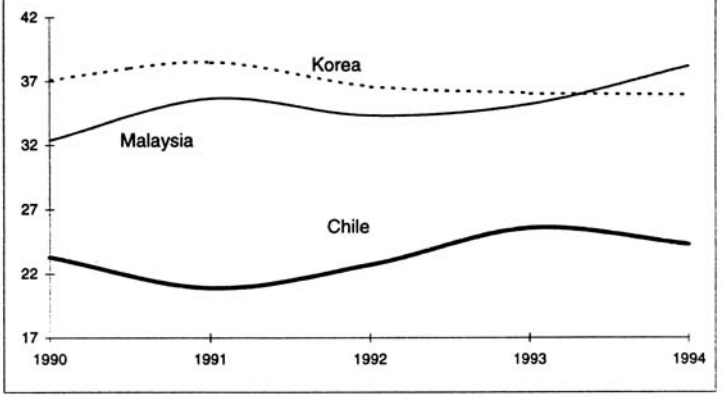


Figure 8: Export/GDP ratio

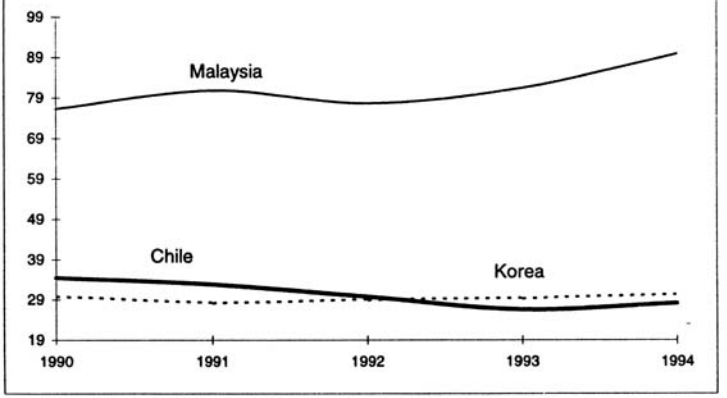


Figure 9: Change in reserves

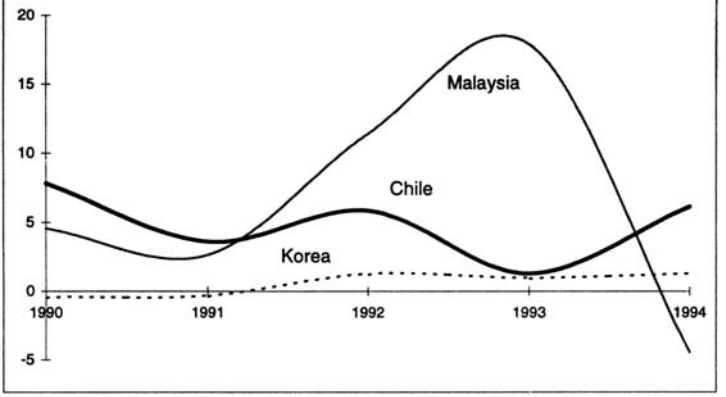


Figure 10: Change in liquidity

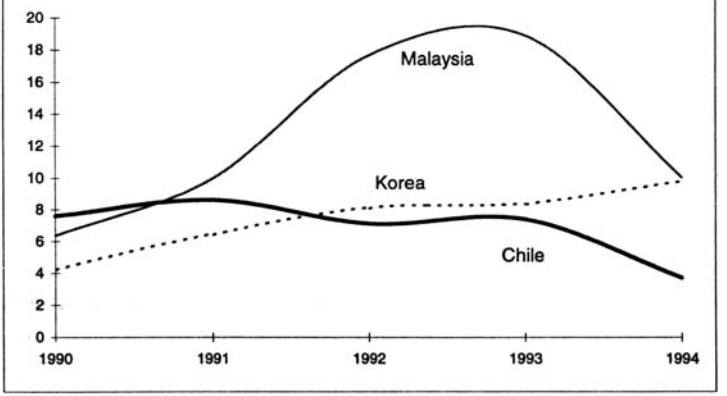


Figure 11: Inflation rate

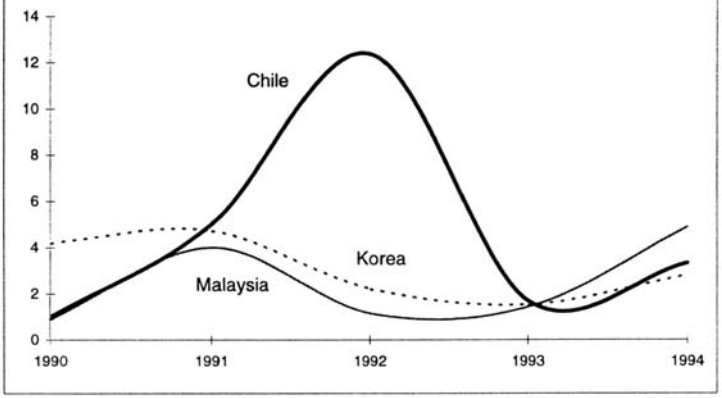


Figure 12: Real interest rate

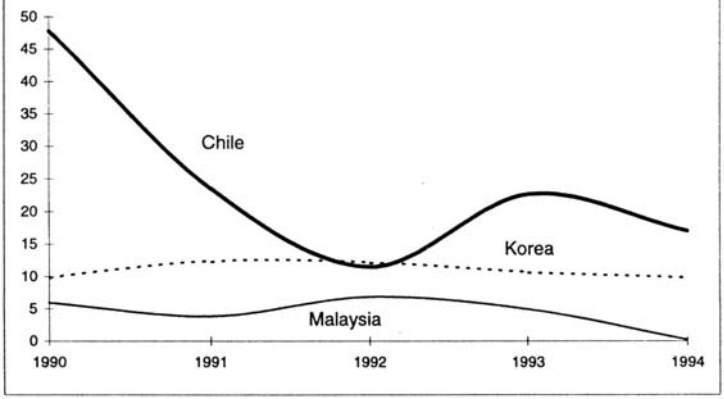


Figure 13: Direct foreign investment

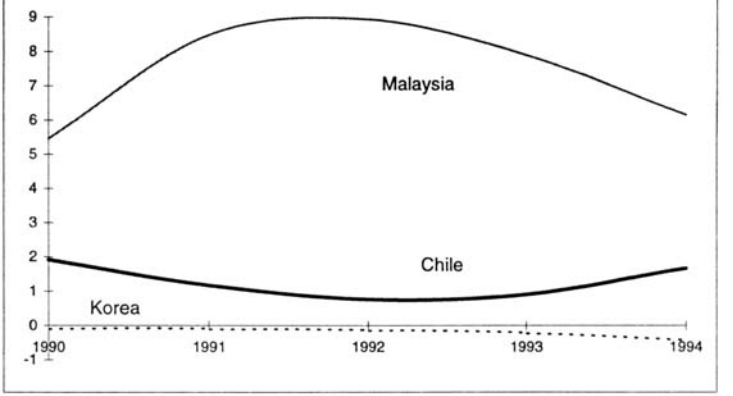
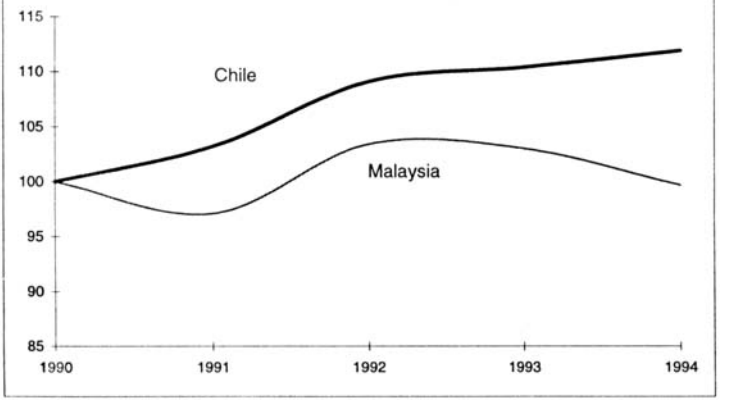


Figure 14: Real exchange rates



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